DOCUMENT RESUME

ED 031 469 TE 001 381

By-Moscovici, Serge; Humbert, Claudine

Studies of Verbal Behavior in Oral and in Written Language. Professional Paper 68-14.

George Peabody Coll. for Teachers, Nashville, Tenn. Inst. on School Learning and Individual Differences.
Pub Date May 68
Note-20p.; Tr. Sara W. Whitten. Original appeared in "Psychologie Francaise," V(1960), 175-86.
EDRS Price MF-$0.25 HC-$1.10
Descriptors-*Cognitive Processes, Communication (Thought Transfer), Communication Skills, Grammar, *Language Styles, Language Usage, Linguistic Patterns, *Linguistic Performance, Oral Communication, *Oral Expression, Thought Processes, Verbal Communication, Vocabulary, *Written Language

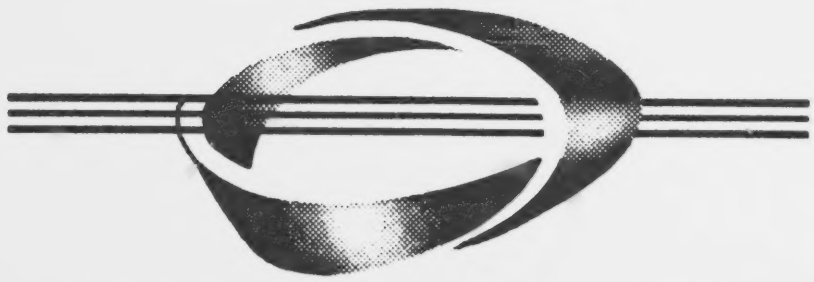
The oral and written language of 10 students expressing themselves on the same subject was observed to determine (1) whether an "oral style" could be identified and (2) what relationship existed between cognitive processes and methods of expression. Six girls and four boys were placed in two situations: an "oral" situation in which the student discussed the cinema while an experimenter recorded the response, and a "written" situation in which students were asked to "Explain to a friend what you think of the cinema." The material received was analyzed for content, for processes of elaboration, and for linguistic expression in terms of total volume of expression, variety of vocabulary used, grammatical characteristics, and frequency of vocabulary items used. These analyses revealed (1) the repetitive and discontinuous character of the oral language with continual modification, in contrast to the articulation that is characteristic of written language, and (2) a correspondence between the structural properties of language and the cognitive processes called into play. However, the nature of these processes, dependent on the means of elaboration and transmission of messages, does not lend itself to specific description. (LH)

ED031469

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

STUDIES OF VERBAL BEHAVIOR IN ORAL AND IN WRITTEN LANGUAGE



Serge Moscovici and Claudine Humbert
(Translated by Dr. Sara W. Whitten)

Professional Paper 68-14

This report is intended for distribution within the College and the Kennedy Center—as a means of increasing communication among colleagues. Papers are distributed when it is believed that they may be of interest locally; they may or may not be published or presented to conferences off-campus. In the case of unpublished materials, recipients are requested not to circulate, reproduce, review, or quote from the report without specific permission from the author.

TE 001 381

Institute on School Learning and Individual Differences
John F. Kennedy Center for Research on Education and Human Development
George Peabody College for Teachers Nashville, Tennessee 37203

STUDIES OF VERBAL BEHAVIOR IN ORAL AND IN WRITTEN LANGUAGE*

Serge Moscovici and Claudine Humbert
Social Psychology Laboratory of the Sorbonne, Paris

Translated from the French for
The Institute on School Learning & Individual Differences
May, 1968 by Dr. Sara W. Whitten, Asst. Prof. of French
George Peabody College for Teachers

I. Preliminary Remarks

This research, an attempt to compare oral and written language, was inspired by two very different and apparently somewhat contradictory ideas.

1. In a preceding study on the social representation of psychoanalysis (1), we were able to find both in the texts which appeared in the press concerning it and in the questionnaires in which we asked subjects to respond in writing to certain open questions, a commonality of style which seemed to us to possess certain characteristics of an oral style quite comparable to the language of subjects expressing themselves in a conversational situation. We stated then that an oral language existed, an oral language which, paradoxically, might not be uniquely characterized by the fact of its being spoken. We speak of it thus in respect of its being undoubtedly more widespread in the current "oral language" than in the written language, but it is

---

*This article, titled "Études sur le Comportement Verbal; Langage Oral et Langage Écrit" appeared in Psychologie Française V, (1960), 175-186. The research reported was carried out under the direction of Professor D. Lagache. The report was presented to the Social Psychology Section on December 3, 1959.

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY Editor of "Psychologie Française" and Institute TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE U.S. OFFICE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

not absolutely specific, since it is found also in certain types of writing.

2. When one reads the not very flattering descriptions which several authors, some classic ones of our day, have made of collective, popular thought, one may wonder if the relatively unelaborated level of this thought is due to intrinsic characteristics, or if it does not bear the mark of its means of elaboration and transmission--a transmission which is, obvi ously, verbal and a mode of elaboration which is never objectivized in a text whose written composition assures identity and continuity. It can be supposed that the modalities of thought which are manifested agree with some mnemonic characteristics and organization depending on the technique used; and this is true, whatever may be the degree of intellectual development of the groups examined. In other words, one wonders if what is called "collective" thought or thought of the "masses" is not the result of the "oral" process of formation of judgments rather than a specific intrinsic property of a situation or of a particular social category.

These ideas can be compared to certain of those concerning the origin of the Greek epics (2). Indeed, one attributes some of their literary properties to the fact that they have been elaborated and transmitted orally, the repetitions, for example, having a mnemonic function.

Without making it our hypothesis that there is an absolute difference between oral and written language--a difference that should be precisely signified beforehand by other means than the indication of a situation--we have tried to relate the cognitive process and the linguistic tool by making use of oral communication at one time and written communication at another. This study being only at its beginning and its

theoretical bases being still summary, it is impossible to form exact hypotheses.

II. THE EXPERIMENTAL SITUATION

These are the characteristics of the situation which we used: it can be defined as a situation of experimental observation.

We worked with ten subjects, six girls and four boys on the level of the "classe de Philosophie." These subjects had to face two types of situations:

1. An "oral" situation. The experimenter alone in a room with the subject, accustomed him to the presence of the tape recorder and then gave him the following assignment: "Will you explain to me what you think of the cinema, what you look for in the cinema, what you think the cinema brings to you?"

The experimenter had the purely passive role of auditor, who at most, encouraged the subject to continue when there were silences. This lasted twenty minutes.

2. The "written" situation was, on the contrary, collective. The experimenter proposed to the subjects that they express themselves in writing on the subject as follows: "Explain to a friend what you think of the cinema, and what the cinema brings you." The experimenter told them that it was not a question of a scholarly essay, but merely of getting their opinion on the subject. The formula: "Explain to a friend" had, in our mind, the aim of making the situation personal; we wanted to make the situation close to the oral situation where the subject spoke to the experimenter, who, though not answering, constituted a sort of

interlocutor quite similar, we thought, to the addressee of a letter. The duration of this test was likewise twenty minutes. Half of the subjects were submitted first to the oral, then several weeks later, to the written situation; the other half first to the written and then to the oral situation.

III. RESULTS AND INTERPRETATIONS

We are going to analyze the material received from two points of view:

1. From the point of view of the content of the texts and of their processes of elaboration.

2. From the point of view of an analysis of the language.

The indices have been worked out on the total of the responses of the ten subjects.

A. The content and its means of elaboration. People generally say that the written language has an abstract character on one hand, and a logical and coherent progression on the other. Oral language, on the contrary, would be more concrete and more discontinuous, the thought progressing not by logical steps but by associative leaps; furthermore, repetitions would be more numerous than in the written, and they would play a supporting role to reflection which would allow for the supplying of finished logic in the absence of structure; whereas in writing one presents a finished piece of reasoning, orally one tends to express and to communicate his thought by successive approaches to a particular idea with enrichment and continual corrections. These are the suppositions that we wanted to test first.

We have taken as an index of the "abundance" of the language the number of "themes" untaken in the discourse: themes such as, for example, the "technical aspect of the cinema" or "the behavior of the audience at the cinema." In the oral language of the 10 subjects, one finds a total of 149 themes, while there are only 107 in the written.[1] On the other hand, the variation among individuals is greater in the oral language (from 6 to 25 themes) than in the written language (from 7 to 15 themes).

If we return now to our initial hypotheses, we will try to determine if the oral language is:

a) more concrete: In the first place, reference is made to more persons. Our subjects cite 26 directors and 20 actors in the oral; while in the written, they mention only 14 directors and 3 actors. Furthermore, in the oral language, the thought is more often supported by concrete examples: that is, films; references are made to 58 films in the oral expression and 39 in the written.

b) more discontinuous: We mean by discontinuity the abrupt passage from one theme to another without transition of any kind. Two themes are simply juxtaposed. In the written language, this juxtaposition is made twice, while it is produced 46 times in the oral.

c) more associative: That is, when the passage from one theme to the other is made, not by logical coherence, but by a process of association of ideas. In the oral language we find this process 15 times, in the written only 5 times.

---

1. Repetitions of the same theme, in the same individual, count only as one theme.

d) more repetitive: We will distinguish two types of repetition. 1. Pure and simple repetitions, when, after an interval, the subject returns to a theme already expressed without variation or enrichment. The first type is produced only once in the written, but it takes place 8 times in the oral. 2. Repetitions with enrichment of the initial theme or variations on the initial theme. These repetitions occur 5 times in the oral language.

The quantitative examination of the texts relatively schematic, shows us that their mode of elaboration, whether oral or written, is distinct. When one drafts a written composition, one has before him the ensemble of the propositions that have been given and one proceeds to combine them in such a way as to obtain a maximum of coherence. It is not the same in the course of oral communication. The individual speaking is focalized by the subject, but he does not register the totality of the preceding statements. The return to certain themes satisfies a purpose to recall, to make the point, to consolidate the judgments formulated. Sometimes a clause or a word sets in motion certain side associations, and the subject returns to his initial word, because repetitions have a corrective role. Furthermore, these repetitions[2] have a function of mnemonic reverbation which permits the person speaking to have present in his mind the communicated material. The construction of discourse in the oral situation is topological; it is linear or combinitory in the written situation. Relative reversibility is possible in this latter case; it is not directly possible

---

2. For a detailed analysis of repetition in the structuring of myths, see the article by Cl. Levi-Strauss (3); for the same relating to propaganda, see the article by S. Moscovici (4) and the work of R. K. Merton (5).

in the first except by the means of various repetitions.

One finds these differences in examining the language used.

B. Analysis of the vocabulary

This analysis of the language to which one has had recourse in different situations is relatively crude where there does not exist in the domain of research either methods of calculation or thoroughly tested indices (6, 7). The results that we are going to present seem to us, nevertheless, to have their descriptive value, in spite of the fluctuations due to the fact that the relationships are not calculated on identical patterns. In our forthcoming studies we hope to be freed from limitations of this kind.

The essential results, obtained in the course of the examination of the vocabulary used, are the following:

a) The total volume of expression is different: our subjects used 3,899 words in the written situation and 13,011 words in the oral. The written expression amounts, quantitatively, to a little less than one third of the oral expression.

If one compares this increase in the number of words to the increase in the number of themes that we have indicated previously (109 themes in the written to 147 in the oral), we can see that the volume of words used increases even more considerably, from one situation to another, than the volume of themes.

In other words, in a given time, one takes up orally a greater number of questions, and he especially speaks more on each one of the questions.

b) We can, at present, envisage the division of these words into different grammatical categories.

Table I

Proportion of Different Grammatical Categories

Used in the Written and in the Oral Expressions

Written		Oral	
Nouns	18%	Verbs	19.5%
Verbs	18%	Nouns	16%
Connectives (prepostiions and conjunctions)	17%	Adverbs	14.5%
Articles	13.5%	Connectives (prepositions and conjunctions)	14%
Pronouns	12.5%	Pronouns	13%
Adjectives	12%	Adjectives	12.5%
Adverbs	8%	Articles	10.5%

The differences of distribution have very little importance; however, the order of frequency of different grammatical categories is a little different.

In the written compositions, the most frequent categories are those of nouns and verbs, while in the oral, verbs, the active elements of the sentence, assume first place. In third place, in the written, are conjunctions and prepositions which represent an element of liason, of articulation of the language, whether it be liason between words or between clauses. The difference, while not being very important in this grammatical category, nevertheless confirms the idea that written language is quite structured while oral language is rather discontinuous.

In the oral, this place is occupied by adverbs which are, on the contrary, the rarest element of written expression. Now the adverb represents in language an element of modification of a word or of a whole sentence; the adverb does not tie words or parts of sentences together; it changes the sense of them. And this corresponds well to one of the hypotheses that we had made in regard to oral discourse: it would be made up of a series of approximations of a particular idea with continual retouches. The adverb by its role of modification is particularly apt to serve as a means of correction and various manipulations of a theme.

This distinction between "the articulation" of the written language and the "modification" of the oral language is found again in relation to certain other indices: in particular the calculated relationships between grammatical categories. The ratio of prepositions to nouns is equal to 55% in the oral and 65% in the written; and that the ratio of conjunctions to verbs is equal to 2.8 in the oral and 3.2 in the written. These two relationships which call into play the characteristic liason words of an articulation are then in our view more important in the written language. Other examples show what we have called "modification" by the presence of the adverb in the oral language.

These are the ratios: adverbs/nouns, adverbs/adjectives, adverbs/verbs as shown in Table II on the following page.

All three are clearly more important in the oral expression. One can, in addition, bring together the quotient, adjective/noun, which in written language is equal to 0.66 and in the oral to 0.78. One can think that in the most important presence of adjectives in relation to nouns, in the oral as in the written, there is reflected equally a

Table II: Indices of Modifications of the Oral Language

	Oral	Written
$\frac{\text{Adverbs}}{\text{Nouns}}$	0.93	0.43
$\frac{\text{Adverbs}}{\text{Adjectives}}$	1.19	0.65
$\frac{\text{Adverbs}}{\text{Verbs}}$	0.75	0.43

character of modification and manipulation of expression. We have also calculated the ratio of verbs/adjectives; its value is in the written 1.49 and in the oral 1.56. Some authors (8,9) agree in thinking that this quotient reflects the more or less sensitive character of oral discourse. The difference we have found between the oral and written is quite weak. Other results are clearer (8). To be able to speak of the psychological character of a grammatical category, one must look for other indices than those offered by the language itself. On the level of communication, we can hardly affirm, at the moment, that the oral situation involves an expression more colored with emotion.

c) We have tried to discern other characteristics which distinguish oral and written language by examining, principally, the variability of vocabulary used. To this end, we will distinguish in a quite conventional manner the "lexical" or root words and "typographical" words. The lexical words are the roots of a whole series of

grammatical forms. For example, we have the lexical word "to be" and the typographical word "was" "will be" and "am", etc. For the words called variables, one notices some variations according to the gender and number and, for verbs, tense and person. For the invariable words the typographical form and the lexical form coincide.

Thus, in the written compositions in a total volume of expressions of 3,899 words, one notices 1,089 typographically different words which correspond to 873 lexical words; and in the oral discussions with a total of 13,011 words, 1,923 words typographically different and 1,427 lexical words.

Table III: Quotients Distinguishing between Typographical and Lexical Words

	Written	Oral
$\frac{\text{Different typographic words}}{\text{Total of words used}}$	0.28	0.15
$\frac{\text{Different lexical words}}{\text{Total of words used}}$	0.22	0.11

In calculating the relationships between the lexical and typographical forms (Table III), one can observe that the indices obtained in the written material have a value almost double that of the oral. This signifies that, in relation to the total responses, one uses a greater number of different words in written language than in the oral. The variety of written vocabulary is then greater, while the oral

vocabulary is more repetitive in words used, whether in their typographic or in their lexical form. One finds again, then, on the level of analysis of vocabulary one of the traits which had appeared to us characteristic of the modes of elaboration of discourse in the oral situation.

The case of the verbs appeared to us particularly interesting because they are the most variable words of the vocabulary, that is they can take the greatest number of forms

Table IV: Variability of Forms of the Verb

	Written	Oral
Verbs typographically-different / Total of verbs used	0.40	0.24
Verbs lexically different / Total of verbs used	0.25	0.11
Verbs lexically different / Verbs typographically different	0.61	0.45

The two first quotients indicated in Table IV express, like those preceding, the most varied character of writing in relation to the spoken language. The third is a little more delicate to interpret. One sees, indeed, that if the written language is richer in different verbs in their typographical and lexical forms, when one considers the relation of lexical verbs/typographical verbs, this quotient is lower in the oral, which means that the number of typographical forms is relatively greater.

This implies that of a limited number of verbs, one uses them in a greater number of forms and one manipulates them in more varied fashion in the oral than in the written expression. Then, in the oral language one repeats more frequently the same expressions, and on the other hand, one uses more often a particular element in varied combinations and in diverse forms. This agrees quite well with the description that we have sketched of this language: simultaneously repetitive[3] and variously inflected.

One can establish another index of the variety of the vocabulary used by noticing the "rare" words in the two types of responses, that is the words which are used only once. Here also, the written language reveals its greatest variety: indeed one notices 690 words appearing only once, which represent 17.6% of the total of words used. In the oral expressions we notice 1,050 but that number represents only 8% of the total of words used. This is also confirmed by the calculation of the functional yield (t^0)[4] of the language proposed by B. Mandelbrot (10) and calculated from the curve of the ranks and frequencies of Zipf (11). This functional yield is equal and it becomes higher as it more closely approaches unity. B. Mandelbrot gives two interpretations:

--the higher the functional yield, the better the vocabulary used;

-- the higher the functional yield, the better the "rare"[5] words of the text used. We have obtained the following values (figure I) of t^0.

---

3. The structuring of oral language requires the creation of auditory and mnemonic substratum-whence the repetitions - necessary to the continuity of the discourse. In written language, the sheet of paper makes this substratum by causing to be present all the elements of communication.

4. The term "functional yield" is here used to translate Mandelbrot's expression, "temperature informationelle." S.W.W.

5. The term rare is here used in the statistical sense.

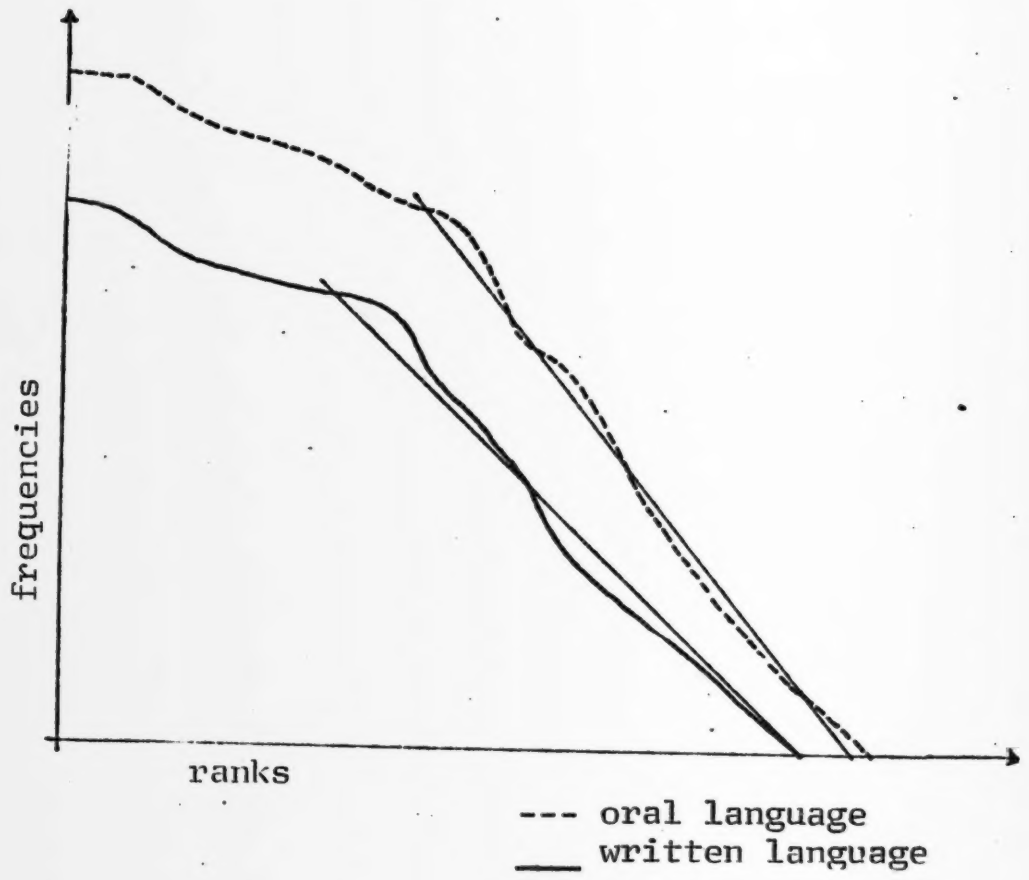


Figure I. "Curves of Zipf" for the oral language and written language

Certainly, the notion of functional yield, if it preserves a precise operational definition, lacks precision on the level of the comprehension of the phenomena that it permits us to study. In the case of this research, we can maintain, being given the values obtained from t^o, that in the written language one makes better use of the different elements of vocabulary. It is fortunate that it be thus, but we do not know, in a non-speculative fashion, the reasons for this

increased perfection of the linguistic tool.[6]

Conclusion

The results of this research cannot at the moment take a completely satisfying form. Although we may have believed that a separate spoken and a written style exist, some important resemblances are found between the two. They can be found in the interior of both the oral language and the written language. These qualifications are too inexact and are applied to situations whose phenomenological evidence could not supply characteristic dimensions to a finer analysis. It would be necessary consequently to disengage these fundamental dimensions of communication and to put them in relation to the properties of the language. It is only in arriving at such a state of analysis that it will be possible to express some hypotheses and to anticipate the relationships. This remark remains valuable when it is a question of relating the cognitive and linguistic processes. We have seen that the modalities of thought of the same individuals depend on the nature of the situation and on the technique of elaboration to which they have recourse. The correspondences

---

6. One understands that the oral language is less efficient. Not that it is less noble, but the tasks that one accomplishes are more numerous than in the written language. Given that the measure of t^{o} is a "thermo-dynamic" one can think, by analogy, that the individual who writes is a "machine" which has used his energy to produce motor effects. On the contrary, oral communication approaches a "machine" which, outside its motor effects, must, for example, give itself another direction alone: therefore its energy is shared among several tasks. In this sense, writing furnishes a higher relationship between the work obtained and the energy expended. But the differences are only of quantity.

established with the vocabulary have by this fact been given a clear significance. But other phenomena remain to be studied, notably those relating to over-expression and under-expression. Indeed, one observes that with an almost constant quantity of words, an individual can be led to treat, in a communication, a more or less large number of themes. Thus according to the particular circumstances one possesses too great a number of words for too small a number of themes (over-expression) and inversely (under-expression). Still it is necessary to envisage the over-expression or the under-expression now on the lexical level, now on the level of typographical forms, according to the convention that we have adopted in this article. The repetition which results -- repetition which is only an index of the way in which the language is structured -- can be either literal or semantic. We have not treated the latter, and we will have to come back to it. This aim remains still far away, our knowledge being very uncertain at the present time. The situation in the domain of research, in the psychology or the social psychology of the language, is far from being cleared up. We know, for example, that one uses other units of analysis than the word: the syllable, the clause, or the phoneme. One can even contest the classification by grammatical categories as important for communication and refer to other rules of syntactical constitution. From this fact other theoretical perspectives are opened before us. They can only enrich the domain explained. The theoretical and experimental progress of the psychology of communications allows us to foresee the possibility of a quite complete

focussing of the dimensions of the circumstances in which a language is formed. The transformations of linguistics, a very advanced science, will facilitate the operations proper to discern the most pregnant aspects of the language. Would it be evidence of unmeasured optimism to think that dimensions of communications and dimensions of the linguistic system could be envisaged respectively as independent variables and dependent variables in a unitary conceptualization? After undergoing like all the sciences, a certain epistemological evolution, from the observation of "natural" speaking to experimental and comparative observation of children, and of pathological problems or of different languages, linguistics has become a science which proposes rigorously theoretical constructions (12) sometimes in a mathematical form. The logical consequence of this development is, certainly, the building of a <u>general experimental linguistics</u> not limited to the study of some individual phenomena (phonetics, for example). The social psychology of language and of communications would be better able to carry out the program proposed for it (I,16) without the embarrassment of numerous uncertainties which are clear in this article, as in other works on analogous problems.

Résumé

This study is an attempt at experimental observation of the oral and written language of ten students expressing themselves on the same subject: the cinema. We have made a comparative analysis of the material thus collected from two points of view: 1) an analysis of the contents proper; 2) an analysis on the linguistic level relating

to the following points: a) the total volume of expression, b) the variety of vocabulary used, c) the grammatical characteristics of the material, d) the frequency of the vocabulary items used, compared with the curves established by Zipf and the calculation of the index of functional yield by Mandelbrot.

These analyses show: a) the repetitive and discontinuous character of the oral language with continual modification, in contrast to the articulation that is characteristic of written language, and b) the correspondence between the structural properties of language and the cognitive processes called into play. The nature of these processes, like that of the language, is not specific; it depends on the means of elaboration and transmission of the messages.

References

1. Moscovici (S.). --La Psychanalyse, son image et son public (Etude sur la représentation sociale de la psychanalyse) sous presse.

2. Thomson (G.). --Studies in ancient greek society, 2 vol., Londres, Lawrence et Wishart, 1955.

3. Levi-Strass (Cl.). --The structural study of myth, J. Amer. Folkl. 68 (270). Oct.-Dec. 1955, 428-444.

4. Moscovici (S.). --Logique et langage dans la propagande: quelques résultats, Bull. de Psychol., 1955, 8, 434-451.

5. Merton (R. K.) --Mass Persuasion, New York, Harper, 1946.

6. Miller (G.). --Langage et communication, Paris: P. U. F., 1956.

7. Johnson (N.). --Studies in language behavior, Psychol. Monogr., 1941, 56, no. 2, 1-15.

8. Fraisse (P.). et Breyton (M.). -- Comparaisons entre les langages oral et écrit, Ann. Psychol., 1959, 59, 61-71.

9. Boder (D.P.). --The adjective-verb quotient: a contribution to the Psychology of language, Psychol. Rev., 1940, 3, 309-43/

10. Mandelbrot (B). --Contribution à la théorie mathématique de jeux de communication, Publications de l'Institut de Statistique de l'Univeristé de Paris 2, 1953.

11. Zipf (G.K.). -- Human behavior and the principle of least effort, Cambridge, Mass., 1949.

12. Jakobson (R.). -- Fundamentals of language, La Haye, Mouton et Co., 1956.

13. Hermann (J.). -- Les changements analogiques, Acta Linguistica, 1951, 118-169.

14. Herdan (G.). --Language as choice and chance, Groningen, Noordhoof, n. V, 1956.

15. Yule (U.). -- Statistical study of literary Vocabulary, Cambridge, 1945.

16. Cohen (M.). --Pour une sociologie du langage, Paris, Albin Michel, 1956.